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10/661,190	09/12/2003	Thomas Beck	2001P02708WOUS	8295

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SIEMENS CORPORATION  
INTELLECTUAL PROPERTY DEPT.  
170 WOOD AVENUE SOUTH  
ISELIN, NJ 08830

EXAMINER
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PADGETT, MARIANNE L

ART UNIT	PAPER NUMBER
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1792

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10/17/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/661,190	Applicant(s) BECK ET AL.	
	Examiner Marianne L. Padgett	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 29-31 is/are pending in the application.
- 4a) Of the above claim(s)    is/are withdrawn from consideration.
- 5) ☐ Claim(s)    is/are allowed.
- 6) ☒ Claim(s) 29-31 is/are rejected.
- 7) ☐ Claim(s)    is/are objected to.
- 8) ☐ Claim(s)    are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on    is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No.   .
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. <u>  </u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                           | 5) <input type="checkbox"/> Notice of Informal Patent Application                           |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>  </u> | 6) <input type="checkbox"/> Other: <u>  </u>  |

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1. Applicants' amendments of 8/8/2007, which cancel the previous claims & amends references to claims on page 6, remove previous 112, first paragraph & New Matter problems in claims & specification as discussed in sections 2-3 of the action mailed 5/9/2007, as well as removing 112, second paragraph problems by the submissions of new claims 29-31 which do not contain the previously discussed 112 problems.

As the new claims are now limited to nickel or cobalt based superalloys, the art rejections based on Jourdian et al. (5,889,401), as a primary reference, are clearly overcome as the substrates having oxide corrosion measured thereon were zirconium alloy rods.

2. Claim 29-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In independent claim 29, lines 7- 10, contained ambiguous phrasing since the juxtaposition of "for an application of an anticorrosive coating" with the "activating..." limitation followed by discussion of "by a second cleaning process..." can be considered to create some confusion as to whether or not the activating & applying are actually the same action or different ones. As the latter option is consistent with the specification & more typical of the coating arts clearer phraseology that probably conveys applicants' intent might be --..., activating the surface of the main body by a second cleaning process different than the first cleaning process, where the second cleaning process is ineffective for removing the corrosion area in the absence of the first cleaning process, and the second cleaning process causes the activating for a subsequent application of an anti-corrosive coating; and --.

3. It is noted that as consistent with the discussions concerning protective & anticorrosion coatings in the paragraph bridging pages 4-5 in the action mailed 5/9/2007, that in general "anti-corrosive" is relative phrasing dependent on environments which the specified superalloy is to be exposed, however as lines 3-4 of independent claim 29 specify types of corrosion (oxidated carbides &

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sulfidized material) to which the main body is susceptible, the requirement of "applying the anti-corrosive coating" to the cast, tested & cleaned superalloy parent material is considered to require that this coating provide less susceptibility to the specified types of corrosion than the uncoated surface of material.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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5. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Törnblom** (4,853,634), in view of **Valleau et al.** (5,028,100), and further in view of **M.J. Woulds**, "How to Cast Cobalt-Based Superalloys", or **Culling** (5,310,522), plus **Burns et al.** (6,042,898), optionally with **Collins et al.** (4,555,612).

In **Törnblom**, see abstract; figures; col. 1, lines 7-14, 24-29 & 45-65; col. 2, lines 5-47; col. 3, lines 3-8 & 16-20; col. 4, lines 25-36, 54-68+, especially 31-33 & 58-63; col. 5, lines 14-45+; col. 6-8, especially col. 6, lines 1-10, 24-31 & 51-58; col. 7, lines 10-26 & 56-67; col. 8, lines 9-11, 17-27 & 48-65, which teach detection of cracks & magnetic regions that are oxide scales on hot cast billets of steel (notice is taken that steel is an iron alloy that contains carbon, i.e. carbides), via use of multifrequency eddy current testing. **Törnblom** discusses (col. 2) that the surface of cast billets are often coated with oxide scales of varying sizes (consider to read on claimed corrosion), which due to temperature considerations become magnetic thus causing disturbing influences on the eddy current testing equipment with respect to identification of cracked type faults. However, it is further taught (col. 5-8) that various types of cracks & oxide scale have different impedance variations at different magnitudes of different carrier frequencies & for certain frequencies, with use of various combinations of lower frequencies (for example <100 kHz) & higher frequencies (for example 1 MHz) to enable reliable discrimination between cracks and oxide scale/magnetic material. **Törnblom** discuss multiple steps, including where the first step chooses to use low-frequency (col. 5, lines 38-45+), also teaching with respect to frequency that the absolute value of the permeability decreases with increasing frequency because of the inherent inertia of the material with respect to rapid magnetic changes (col. 6, lines 32-41), thus appears to provide a scientific or efficiency motivation for employing the lower frequency, before the higher frequencies in the taught eddy current testing technique. **Törnblom** also discusses some automated evaluation techniques, where alarm signals may be employed for the presence of magnetic material/oxide scale, so that if desired the removal and/or elimination of the magnetic material may be performed (col. 7, line 60-col. 8, line 26).

Törnblom differs from the present claims by not specifying that when the oxide scale ( $\equiv$  corroded areas) is located that the thickness thereof is ascertained, however it would have been obvious to one of ordinary skill in the art that in order to discriminate from cracks & potentially remove oxide scales as taught, it would've been necessary to determine the thickness of the oxide scale in order to effectively carry out the teachings of the primary reference, especially considering that determining the location may be considered inclusive of determining dimensions of both the extent with respect to the surface & the depth or height of the oxide scale with respect to the surface, which considerations are inclusive of the claimed thickness. It would have been further obvious to one of ordinary skill in the art that such thickness determinations are consistent with the teachings of Törnblom, as **Valleau et al** teach employing several frequencies in order to provide accurate description of size & shape of a fault in a material with improved resolution using nondestructive eddy current testing. In Valleau et al., see the abstract; figures, especially 1; col. 1, lines 16-23; summary; col. 4, lines 7-55 describing the eddy current measuring, controlling, analyzing & display/alarm apparatus; col. 4, line 56-col. 10, line 34, especially col. 5, lines 1-10 & 21-26; col. 6, lines 46-68+; col. 7, lines 31-64; col. 8, lines 23-68; col. 9, lines 48-60+; & col. 10, lines 5-34 for extensive discussion of means of using multiple frequencies for fault detection inclusive of thickness determination, where although the exemplary techniques are mainly directed to graphitic fibers, the use of the same technique with other conductive materials, including ferrous materials, is also suggested, with teachings on how one would determine appropriate fault-response signatures for particular types of faults in other/particular materials. In col. 11, line 45-col. 12, line 29, Valleau et al. further teach inclusion of alarms in their apparatus to indicate the presence of faults, as well as steps of collecting & storing raw data, then employing programs to interpret and display the data, etc. Therefore, it would have been obvious to one of ordinary skill in the art given the teachings of Törnblom to employ multifrequency eddy current testing techniques as suggested therein to determine the thickness of the oxide scale defects, since as shown in Valleau et al., multifrequency techniques are well capable of

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determining thickness of faults, including for ferrous materials, such as would have been expected to include the steel billets of the primary reference, especially considering that Törnblom's suggestion of removal in order to be effective would require knowledge of the oxide scale dimensions, including thickness.

The combination of **Törnblom, in view of Valteau et al.** does not teach Ni-or Co-based superalloys, nor specify that the object being tested for corrosion is a gas turbine component, such as a blade, however the article by **M. J. Woulds** (1st col., p.46; 1st, 2nd & 5th paragraphs in continued section, p.97), or the patent to **Culling** (abstract; col. 1, lines 6-21; summary; examples, especially example 1 on col. 3, lines 60-col. 4, lines 46, noting col. 3, line 68 & table 1, with the alloys of the Culling's invention have only a couple weight % Fe more than Ni, while Hastelloy X has 18.12 % Fe & 48.45 % Ni) indicate that superalloys that are cobalt-based, or Fe-Ni-Cr alloys, respectively, may be cast & may have corrosion (oxidation and/or sulfidized) problems as claimed which are desire to be minimized, as well as indicating their known usage for airfoil or turbine components. Hence, it would've been obvious to one of ordinary skill in the art when casting components of such materials, including for turbine parts, such as gas turbine blades to test such components after manufacture, i.e. casting, to insure equality of the components produced the a testing procedures, such as set forth in Törnblom, in view of Valteau et al., which combination establishes a procedure that includes testing for corrosion on metal substrates that have been cast, inclusive of oxidative corrosion which may be desired to be removed, because it is old and well-known that such corrosion can be detrimental to the useful life of such components & testing would enable both quality control and repair/removal of any corrosion found.

While the combination of Törnblom & Valteau et al., in view of MJ Woulds or Culling is suggestive of the claimed process of casting nickel or cobalt-based superalloys materials, followed by multifrequency eddy-current testing to determine any presence & thickness of corrosion on the casting, with suggestions to remove observed contaminants/oxide, this reference do not suggest any specific

contaminant removal techniques or procedures, nor are they directed to subsequent coating, such as the claimed anticorrosive coating.

**Burns et al.** (abstract; figures; col. 1, lines 5-30 & 57-62; col. 2, especially lines 1-9, 26-30 & 44-63; col. 3, especially lines 1-10 & 33-67, plus col. 4, lines 1-23; col. 6, example 2) also discuss superalloys substrates, where undesired oxides and contaminants are to be removed, with discussion of application of oxidation resistance metallic bond coats & ceramic layers (thermal barrier coatings). Burns et al. notes that thermal barrier coatings may be deposited directly on to the blade or may be deposited over an undercoating on the blade when using their technique. It is taught in Burns et al. that while there have been many successful varieties of coating applications for coating gas turbine engine components with metallic bond coatings, etc., that there is a constant search for ways to improve the durability of these coatings. Burns et al. further teach a surface preparation sequence inclusive of cleaning to remove oil, other organic or carbon-forming contaminants, surface oxides and other adherent contaminants, noting that typical prior art cleaning methods include a thermal cyclic cleaning step in oxidizing atmosphere to remove various organic contaminants, followed by mechanical cleaning, such as grit blasting, etc., to remove embedded surface oxides and other undesired adherent contaminants. Burns et al. found that the coating life could be improved by 50% or more by following such prior art cleaning processes with an ionized gas stream cleaning process, such as a "reverse transfer arc cleaning" that employs ionized inert gas, i.e. a plasma cleaning process, which essentially cleans via sputter vaporization of contaminants inclusive of remaining oxides. This sequence reads on applicants' technique that comprises to cleaning processes, where one is not sufficient without the other. It would have been obvious to one of ordinary skill in the art that given the above combination of Törnblom & Valleau et al., in view of MJ Woulds or Culling, that Burns et al. provides an effective cleaning techniques to deal with oxide contaminants such as discussed in this combination, including for specific substrates such as the suggested superalloys turbine blades, while also providing an additional reason & motivation for such



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cleaning and oxide removal in order to provide superior surface preparation to increase durability of the protective coatings taught to be applied thereafter.

It is noted that while Burns et al. state that process may be employed on either the superalloys substrate, or on such a substrate within "undercoating", all their examples of their cleaning techniques that represents their improvement are applied to the bond coat, i.e. the undercoat, however it is clear & obvious from their teachings that the same cleaning techniques would have been expected to be effective & applicable to the superalloys substrate itself, especially considering the optional reference of Collins et al. (abstract; figures; col. 1, lines 6-8 & 43-col. 2, lines 16 & 61-col. 3, lines 22 & 51-57; col. 4, lines 3-65; col. 5, lines 24- 28+), who also teach plasma jet cleaning via an arc transfer process, which is discussed as applicable to superalloys substrates such as, turbine blades or buckets, for removal of contaminants particularly inclusive of oxides, where the appropriateness of the use of such cleaning techniques to remove oxides after inspection procedures is also noted, thus providing further motivation & cumulative evidence for the known & effective use of such cleaning techniques directly to the superalloys as set forth in the above combination & with respect Burns et al.

Note with respect to the particular claimed cleaning sequence of grinding, then sputtering (claim 30), grinding is a mechanical process thus encompassed by the teaching of embedded oxide removal via mechanical processes, and the ion bombardment with inert gas ions of the taught plasma jets would effect its further cleaning via sputtering, hence is considered to read on the claimed "activating" as it is providing demonstrated improved adherence. Notice is taken that grinding is a conventional mechanical removal technique used equivalently with other mechanical techniques, such as grit blasting. Therefore, it would've been obvious to one of ordinary skill in the art, that while the specifically exemplified mechanical cleaning techniques of Burns et al. did not specifically specify "grinding", that as this is a conventional, old and well-known technique of removing material from metal objects, as well as a common mechanical removal technique, these teachings would've been suggested to one of ordinary skill

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in the art to employ mechanical grinding for its conventional removal purposes due to the suggestion of mechanical cleaning techniques to remove oxide contaminants.

6. Kircher et al. (6,036,995) is cited for showing the known equivalence of grit blasting, grinding or belt sanding for removal of material on steel or superalloys substrates, inclusive of turbine components, where mentioned removed material may be metallic &/or oxides (abstract; col. 1, lines 5-8 & 35-52; col. 2, lines 1-5, 21-31 & especially 61-67; col. 3, lines 16-35+; especially col. 8, lines 20-34, especially lines 20-27).

Also of interest for teaching mechanical cleaning techniques for turbine and/or superalloys substrates include Kang (4,788,077: abstract; example 4, col. 10, lines 58-68 with nickel alloy turbine blades being grit blasted + abraded with a wheel + treated with a vibrator); Nenov et al. (5,935,407: abstract; col. 2, lines 52-col. 3, lines 16 for preparations for bond coatings for oxidative protection via machining the blade tip then cleaning such as with grit blasting); Vine et al. (4,861,618: col. 5, lines 11-30, especially 11 & 15-21 for cleaning superalloys substrates via grit blasting to remove all oxides and contaminants then plasma spraying bond coat); and Czech et al. (6,217,668 B1: abstract; col. 1, lines 5-15 & 53-col. 2, line 24; and col. 3, especially lines 42-60 for mechanically cleaning corroded superalloys surfaces, exemplified by abrasive of blasting).

7. James et al. (2002/0066770 A1 = PN 6,491,208 B2 remains of interest as cumulative to the above rejection & providing relevant teachings concerning fabrication & repair of superalloy turbine components, including blades. As previously discussed in James et al. (770), see figures 2-3; [0001-3] teaching the process is for part fabrication &/or repair, including for turbine components, noting Ni & Co-based superalloy materials for use in turbine components, such as blades, which may be cast & are known to be coated with protective coatings, including bond coatings providing oxidation resistance & improve adhesion for the thermal barrier coating, where common bond coat materials include MCrAlY, where M = Ni, Co, Fe or mixtures thereof; [0005-6] concerning the no need to repair cracks & complications due to

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the presence of contaminants on the surface; [0007] cleaning an area before deposition; [0022] for repair or fabrication process involving components formed of superalloy materials, where [0023] the component may be any turbine engine part & [0024] turbine parts are subjected to any of a variety of nondestructive examinations including the option of eddy current tests to identify discontinuities which may be cracks on our other types of discontinuities including those resulting from oxidation or chemical attack. Preparation of the part surface [0025] includes cleaning a way contaminants, such as products of oxidation of the base material or deposits of foreign substances, where cleaning may be by any known method. After surface preparation [0027] deposition is then applied to the part surface &/or repair surface. While James et al.'s exemplary discussion is mainly directed towards the repair option, they explicitly teach that their technique may be employed in fabrication, as well as noting conventional use of cast superalloy materials & protective coatings as claimed, hence from these teachings of James et al. & the teachings of the above combination, which include the recognition of the presence of oxidation in casting procedures of materials such as used in James et al. The teachings of James et al. remain relevant to the above rejection as it would have been further obvious to one of ordinary skill in the art to employ eddy current testing procedures, such as taught by Törnblom, in view of Valteau et al., because the teachings of James et al. indicate that the presence of oxidation contaminants are detrimental to turbine blade components, such that they should be tested for by processes inclusive of eddy current testing & removed before proceeding with coating processes.

8. Other previously cited art of interest included: JP 64-59064 to Inukai et al. teaching eddy current thickness measurement of oxide scale on steam turbine rotors; Bour et al. (6,051,972), who teach a further eddy current inspection technique using two or more frequencies to determine the condition (cracks, wear, clearance variations, etc.) of a metal body, in this case a metal (steel) to having a thin layer of material with magnetic or electrical characteristics different from the "metal in-depth"; Oliver (5,017,869), who teaches measuring thickness of the coating using a variable-frequency eddy current,

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with a typical frequency sweep of between about 10 kHz-10 MHz, where an exemplary sweep raises the frequency to determine a transition frequency in the coating thickness determination (abstract; col. 1, lines 5-43 & 65-col. 2, lines 30; col. 3, lines 50-68; & claims 24-33); Beeck et al. (6,534,975 B2), has further teaching of turbine blades made of nickel-based superalloys & protective coatings inclusive of claimed MCrAlY, with eddy current determination of protective layer thickness; Jaworowski et al. (6,165,542) & Becker (6,040,694 to the same assignee as applicants) with teachings equivalent to Beeck et al.; patents to Schnell et al. (7,175,720 B2 & 7,150,798 B2), which are not prior art but have multifrequency eddy current testing systems of interest for MCrAlY coated components.

9. Claims 29-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16-29 & 31-32 of copending Application No. 10/525,026, in view of **Burns et al.** (6,042,898), optionally with **Collins et al.** (4,555,612), and optionally further considering **M.J. Woulds**, "How to Cast Cobalt-Based Superalloys", or **Culling** (5,310,522).

While the copending cases claims are directed to claimed eddy current testing of based bodies inclusive of claimed superalloys materials and may be blades or vanes, the claims of the copending case (026) do not have limitations directed towards the cleaning & coating the base body after determining the degradation thereon, however the references of **Burns et al.** (6,042,898), optionally with **Collins et al.** (4,555,612), which were discussed above in section 5, provide reasons for obviousness of claimed cleaning & coating to remove known contaminants & oxides after the testing of the copending claims, which may be combined with 10/525,026-claims for substantially reasons as set forth above. It is further noted that neither Burns et al., nor the optional Collins et al. discuss how their superalloys turbine components were formed however casting is a conventional formation technique for such components, thus would have been considered by one of ordinary skill in the art to be an obvious means of providing the taught turbine superalloys components, or optionally further considering **M.J. Woulds**, "How to Cast

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Cobalt-Based Superalloys", or **Culling** (5,310,522), also discussed above, either of which substantiate the conventionality of employing such casting methods for superalloys turbine components.

It is further noted that while the copending case is more detailed concerning the eddy current multifrequency process & claims limitations in different orders, the process claimed therein encompasses the broader process of the present claims. Also while the copending case's claims have been amended to delete gas turbine from the description of the component, it still has a dependent claim 16 directed to the component being a blade or a vane, such that considering the materials claimed for the base body & the type of degradation (oxidized carbides) being tested for, it would've been obvious to one of ordinary skill in the art that the types of blades and vanes contemplated were gas turbine blades, especially in light of the specification. Note that determination of a depth of a degraded region is considered equivalent to determination of its thickness.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Applicant's arguments with respect to new claims 29-31 have been considered, but are moot in view of the new ground(s) of rejection.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software

10/11-12/2007



MARIANNE PADGETT  
PRIMARY EXAMINER